



Sinapsis

Build and manage AI workflows through modular and scalable Agents based on composite and reusable Templates.

Welcome to Sinapsis! The all-in-one AI-native platform that unifies the most powerful and innovative AI tools, from computer vision and NLP to GenAI, speech processing, time-series analysis, and beyond. Whether you're building, experimenting, or deploying, Sinapsis empowers you to create seamless end-to-end workflows, unlocking new possibilities and accelerating AI-driven innovation like never before. Join us in shaping the future of AI!

Core components

Agent

It's the core component of Sinapsis. The Agent orchestrates Template executions by constructing and managing a processing workflow defined by Agent and Template schemas.

Agents can operate in the following execution modes:

- **Single**. Perform a single execution of the templates enlisted in the agent definition. A single DataContainer is returned.
- **Generator**. In this mode, the Agent operates continuously until all the templates enlisted in the agent definition finish their individual execution. For example, the Agent runs until all the files contained in a specified directory have been successfully processed. Once the Agent finishes its execution the resulting DataContainer objects are returned.
- **Loop forever**. The Agent operates in a continuous loop until explicitly stopped by an external signal. This mode is designated for real-time data ingestion from sources like surveillance cameras or similar live data streams. While the Agent itself does not return any data, the processed DataContainer contents can be stored or visualized based on user specifications.

Another important features of Sinapsis agents are the following:

- Supports topological sorting to dictate execution order.
- Ensure the Agent and Template definitions are valid by employing Pydantic schemas.
- Allows to update template attributes and reset template instances during runtime.



- Agent and Template performance can be monitored through profiler.
- Supports multiprocessing flows.

Template

Templates offer a structured, reusable framework for building Agent executable components. Each template is a self-contained component, designed to perform a specific task and uphold the single-responsibility principle. This ensures clear separation of concerns, promoting reusability and simplifying maintenance. In summary, a template can encapsulate a single function, a series of related operations, or even orchestrate the execution of other templates, providing a flexible and powerful building block for developing Agent-based solutions.

The following points highlight the key characteristics of templates:

- Extensive parameterization via Template attributes.
- Single input and output design.
- Independent, standalone functionality.
- Ability to be dynamically created from existing Python modules, methods, or classes.

DataContainer

The DataContainer is a data structure used to standardize the transportation of data in Sinapsis, allowing uniform data handling in all Agents and Templates. To maintain a consistent structure, a DataContainer is designed to carry Packet data types offering robust and predictable management of the data content. Additionally, the DataContainer offers storage support for generic data structures not covered by native Packet data types in the form of Python dictionaries. However, generic data types should be rarely used.

Packet

A Packet is the base data class for the different data types that can be transported in a DataContainer. It encapsulates the content and metadata information of individual data objects being processed by Templates. Sinapsis provides native support for the following Packet types:

- **ImagePacket.** Packet used to store image data. It supports the storage of image annotations data such as bounding boxes, key points or segmentation masks. Similarly, color space can also be registered. Videos can be stored as frames, each of them in an ImagePacket.



- **TextPacket.** Packet used to store text data like number of tokens and language.
- **TimeSeriesPacket.** Packet to store time series data such as time series predictions and future and past covariates.
- **BinaryPacket.** Packet to store binary data.

Documentation

Explore our extensive and detailed documentation for all Sinapsis packages. Our comprehensive guides cover everything you need to build powerful AI workflows.

Core Sinapsis Packages

Fundamental components that form the basis of the Sinapsis framework, including Template structures, data containers, and packet types.

Sinapsis Data Tools

Collection of tools for data reading, writing, visualization and generic processing across various media types including images, audio, video, and text.

Sinapsis LangChain

Integration with the Langchain library for advanced document processing.

Sinapsis Image Transforms



Sinapsis OpenAI

Implementation for leveraging OpenAI APIs. It enables users to easily configure and run various AI tasks including chat completions, audio processing, and image generation/editing.

Sinapsis Speech

Integration with speech to text models for audio generation.

Sinapsis Ultralytics

Integration with Ultralytics for training, inference, validation and export operations for different computer vision tasks using Ultralytics models

Sinapsis Hugginface

Integration with Hugging Face models, specializing in zero-shot object detection, classification, segmentation, generative workflows, and embeddings.

Sinapsis Time Series



More packages covering additional capabilities will be available soon.

[Visit Complete Documentation](#)

Tutorials

Learn through practical examples with our collection of tutorials that will help you master Sinapsis AI platform functionality.

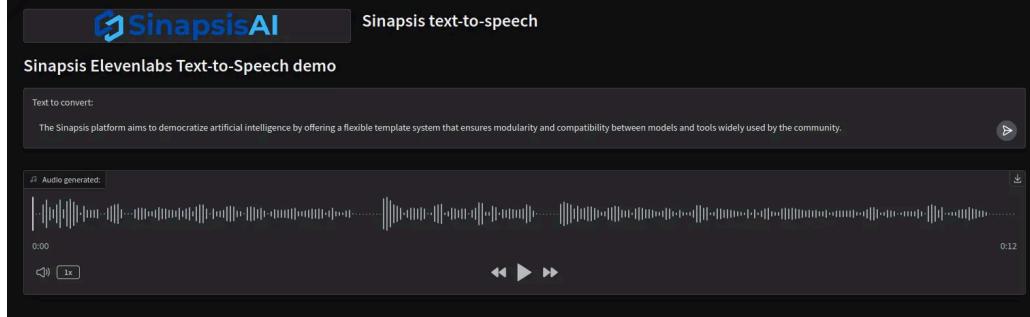


Sinapsis CLI

Hands-on guide to using the Sinapsis Command Line Interface for managing your projects and workflows.

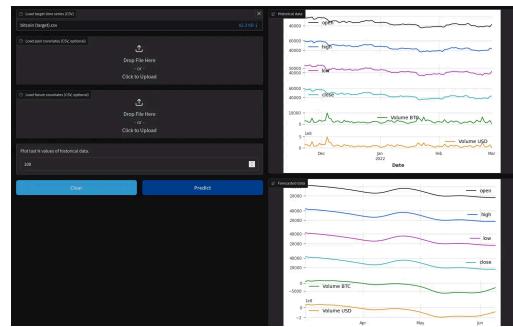


Sinapsis Image Transforms



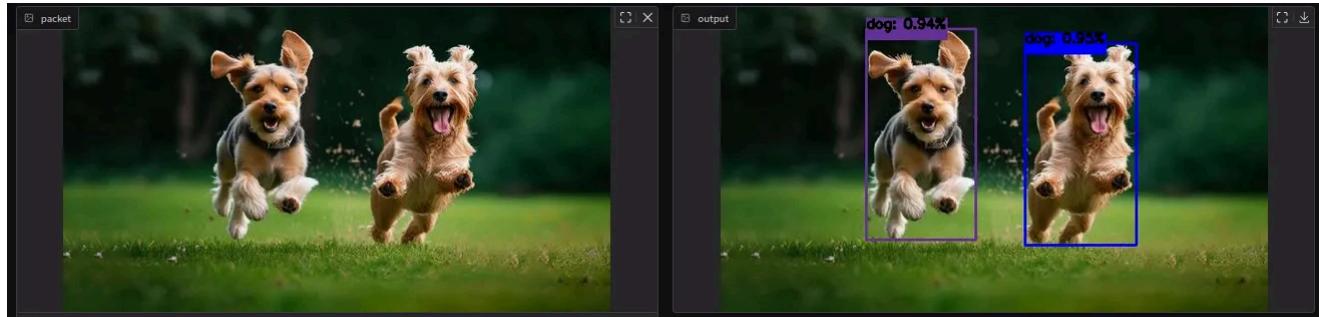
Sinapsis Text-to-Speech Tutorial

Practical guide to generating speech from text using Sinapsis speech synthesis capabilities.



Sinapsis DARTS Forecasting

Tutorial on performing time series forecasting, preprocessing, and data loading.



Sinapsis Ultralytics



Text to image

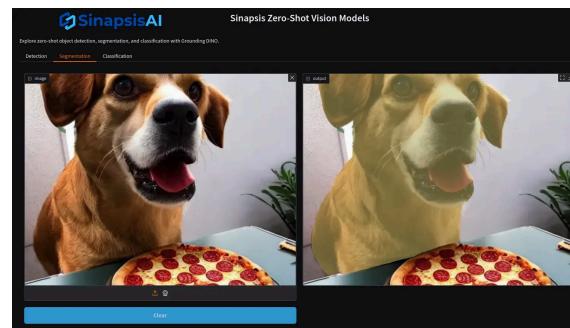
Image to image

Inpainting



Sinapsis Hugginface Diffusers

Practical guide to using Diffusers models for image generation, editing, and inpainting.



Sinapsis Hugging Face Grounding DINO

Implementing zero-shot object detection using Grounding DINO

More tutorials covering additional components, workflows, and specialized topics will be added regularly. Check back often for updates!

[Explore All Tutorials](#)



[SinapsisAI](#)

Building 7 566 Chiswick High Rd,
London, United Kingdom, W4 5YG



Universal and Modular AI



2025 © Sinapsis AI LTD